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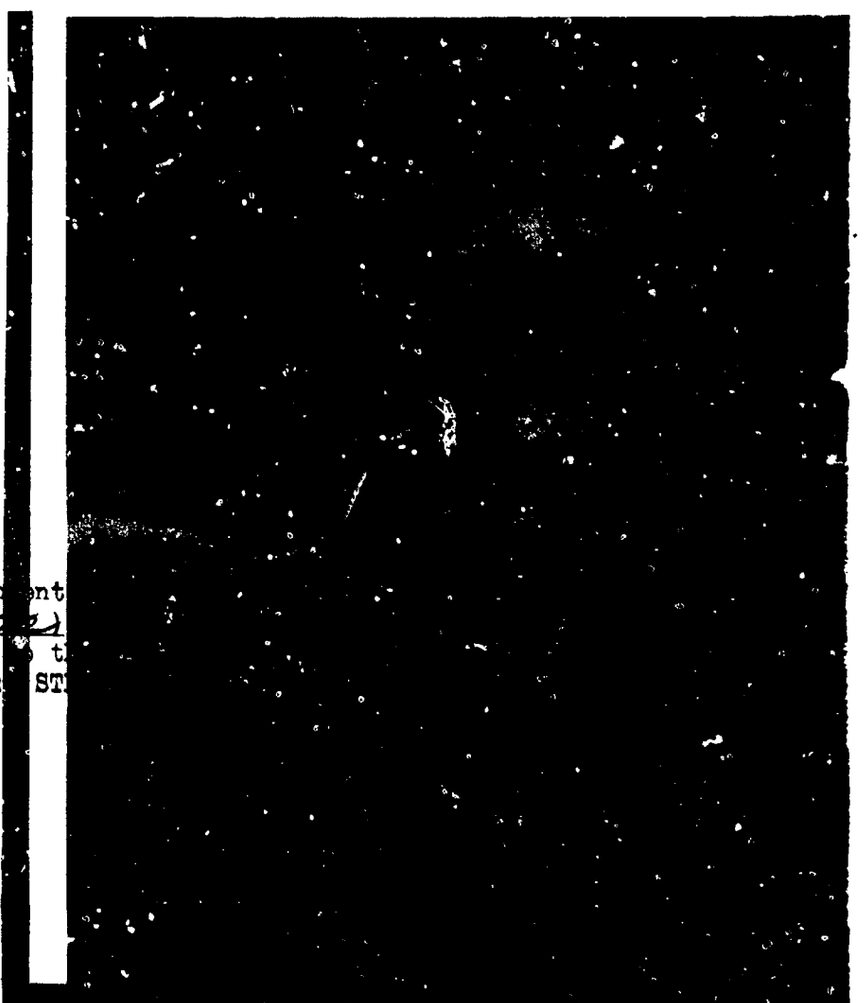
2nd STATIC TEST of SECTIONAL MUNITIONS

DPGR 120

RW 1-53



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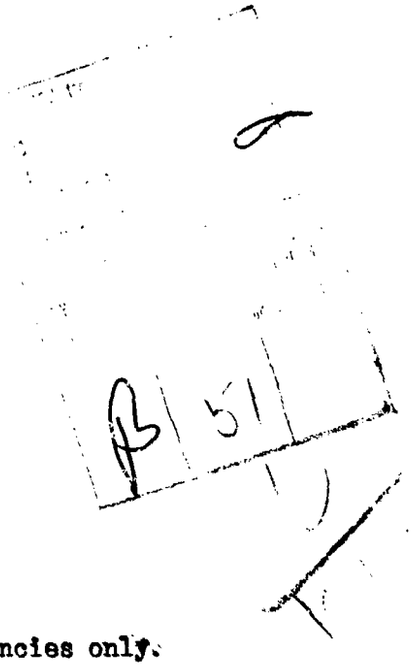

(7)

STATIC TEST OF FULL-DIAMETER SECTIONAL MUNITIONS, E83, DPG RW 1-53 [redacted] (S)-(8)

DUGWAY PROVING GROUND REPORT 120

Project Number 4-98-05-007

(16) IA

(14) DPG-R-120

(11) 18 Sep 53

(13) 48p.

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CONTENTS
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ABSTRACT

OBJECTIVES

(SECRET) The objectives of this test were:

To determine the effect of shaping the explosive charge of the Bomb, Radiological, 1000 pound, M83, on the dispersion and breakup of the agent, and to determine the extent and intensity of the field radiation produced by the Bomb, Radiological, 1000 pound, M83.

RESULTS

(SECRET) Five full-diameter sections of modified M83 radiological bombs and one full-diameter section of a modified M59 bomb were statically detonated on 23 September 1952. Three of the M83 munitions malfunctioned: one failed to explode and remained suspended on the firing pole but was later successfully functioned; two were only partially exploded but fell to the ground and scattered the agent pellets over a small area. Jet-type initiators were used initially in these malfunctioned munitions; the munition which had not fallen to the ground was successfully functioned by use of an electric blasting cap in an explosive (Composition 3) packed into the initiator housing.

(CONFIDENTIAL) The radiation fields of the four functioned munitions were measured at a three-foot height on a 50-yard grid spacing; isodose contours and profile diagrams were plotted from these data. Measurement of area coverage was made by a point-

counting method and from profile-diagram data. The total radioactivity dispersed by each munition was measured in apparent curies.

(CONFIDENTIAL) Comparisons were made of the agent dispersion patterns obtained in this test and in Field Test RW 1-52 (DPGR 107)[1].

CONCLUSIONS

(SECRET) The radiation fields of the four functioned munitions show no differences which may be considered significant. However, the fields of these four munitions, considered as a group, exhibit a distinct difference in the shape of the profile diagram when compared to the fields of the M83 bombs tested in RW 1-52.[1]

(RESTRICTED) Failure of three out of five of the jet-type initiators used in this test indicates some fault in the design or application of this type of initiator.

[1]Static Tests of Four Segments of Full-Diameter Sectional Munitions, M83; RPG RW 1-52. DPGR 107. 7 May 1953. (SECRET)

INTRODUCTION

AUTHORITY

This test was authorized by:

(SECRET) Test Directive, CMLRE-C-1, 24 July 1952, subject: Development Test of the Bomb, Radiological, 1000 lb., M83, RW 1-53.

(CONFIDENTIAL) The test was conducted under Research and Development Project 4-98-05-007: Testing of RW Aerial Munitions, DPG.

OBJECTIVES

(SECRET) The objectives of this test were:

To determine the effect of shaping the explosive charge of the Bomb, Radiological, 1000 lb., M83, on the dispersion and breakup of the agent, and to determine the extent and intensity of the field radiation produced by the Bomb, Radiological, 1000 lb., M83.

SCOPE

(SECRET) This test was an extension of Dugway Proving Ground Field Test RW 1-52, reported in DPGR 107[2]. Full-diameter sections of modified M83 bombs were utilized in both investigations in furtherance of the plan for development of small area radiological munitions. One full-diameter section of an M59 bomb was also func-

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[2]Ibid.

tioned in this test.[3] The experimental methods employed were similar to those used in RW 1-52 (DPGR 107).[4]

(CONFIDENTIAL) Area coverage and agent dispersion (profile) diagrams of each munition functioned in both tests are presented and compared.

MATERIALS AND METHODS

MATERIALS

Agent

(SECRET) The agent, radioactive tantalum, was used in the form of cylindrical pellets 5/16 inch in diameter and 5/16 inch in height. The pellets were formed from a mixture of: 83 per cent tantalum dust, 400 mesh; 15 per cent fine copper wire, for binding; and two per cent molybdenum sulfide, as lubricant. A description of the fabrication, packaging, and activation of similar pellets is found in DPGR 107.[5] For this test, the irradiation procedures were designed to give an activation level of 5 to 10 curies per pound of pellets.

Munitions

(SECRET) Five of the munitions tested were full-diameter

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[3]Test Directive, RW 1-53 and Draft Report RW 1-52. Letter, CMLRE-C. 9 September 1952. (SECRET)

[4]Ibid. (See particularly pp 18-23.)

[5]Ibid. p 11.

sections of modified M83 radiological bombs; the sixth was a full-diameter section of a modified M59 bomb. Detail of design modifications of all sectional munitions tested in RW 1-52 and RW 1-53 are given in Tables 1a and 1b. The function of the components designed to give a shaped charge have been described previously (DPGR 107).[6]

Targets

(RESTRICTED) The test was conducted on Target J in the Granite Peak area (Fig. 1). The grid complex consisted of six square grids, each 1000 yards on a side. Survey stations, marked by wooden stakes, were distributed at intervals of 50 yards in a square array (Fig. 2). On each grid, the points on the abscissa were labeled alphabetically, and those on the ordinate, numerically. For purposes of tabulating survey data, the ordinates were renumbered to include all off-target data. The resulting grids are shown in Figure 2.

(RESTRICTED) A 60-foot gibbet was erected at the center of each grid; the munitions were suspended from the crosspieces and fired from a height of 50 feet above terrain.

Radiation Intensity Measurement Equipment

(RESTRICTED) MK-5 and T1-B gamma radiation intensity-measuring

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[6] Ibid. pp 11-16.

TABLE 1a: Munition Characteristics for RW 1-52 (SECRET)

DESCRIPTION	MUNITION				UNIT
	Able	Baker	Charlie	Dog	
Munition					
Overall Height	7	6	6	6	Inches
Overall Diameter	16	16	16	16	Inches
Overall Area	201	201	201	201	Sq inches
Overall Volume	1407	1206	1206	1206	Cu inches
Jet					
Angle	28	14	None	14	Degrees
Material	Cu	Cu	None	Cu	Material
Wave Former					
Thickness	1.81	.94	.94	.94	Inches
Material	Al	Cu	Cu	Cu	Material
Pusher Plates					
Thickness	0.5	0.5	0.5	0.5	Inches
Material	HT4130 Steel	HT4130 Steel	HT4130 Steel	Plastic-50% HT4130-50%	Material
Booster					
Compartment Height	5.62	4.94	4.94	4.94	Inches
Compartment Area	9.74	7.85	7.85	7.85	Sq inches
Compartment Volume	54.79	38.76	38.76	38.76	Cu inches
Explosive Material	Tetrytol	Tetrytol	Tetrytol	Tetrytol	Material
Explosive Weight	3.21	2.27	2.27	2.27	Pounds
Burster					
Compartment Height	6	5	5	5	Inches
Compartment Area	75.48	82.20	89.36	82.20	Sq inches
Compartment Volume	452.9	411.0	446.8	411.0	Cu inches
Explosive Material	TNT	TNT	TNT	TNT	Material
Explosive Weight	25.68	23.31	25.34	23.31	Pounds
Total Explosive Weight	28.89	25.58	27.61	25.58	Pounds
Agent					
Compartment Height	6.25	5.5	5.5	5.5	Inches
Compartment Area	72.6	67.8	67.8	67.8	Sq inches
Compartment Volume	453.8	372.9	372.9	372.9	Cu inches
Material	Tantalum	Tantalum	Tantalum	Tantalum	Material
Activation	9.66	9.66	9.66	9.66	mc/gm
Weight	96.0	76.8	76.8	76.8	Pounds
Total Activity	420.7	336.7	336.7	336.7	Curies
Ratio of Weight of Agent To Weight of Explosive	3.32	3.00	2.78	3.00	None

TABLE 1b: Munition Characteristics for RW 1 53 (SECRET)

DESCRIPTION	MUNITION				UNIT
	Able	Charlie	Easy	Fox	
Munition					
Overall Height	6.5	6.5	6.5	6.5	Inches
Overall Diameter	16	16	16	16	Inches
Overall Area	201	201	201	201	Sq inches
Overall Volume	1306.5	1306.5	1306.5	1306.5	Cu inches
Jet					
Angle	28	None	14	None	Degrees
Material	Cu	None	Cu	None	Material
Wave Former					
Thickness	1.81	.94	None	None	Inches
Material	Cu	Cu	None	None	Material
Pusher Plates					
Thickness	0.5	0.5	0.5	None	Inches
Material	HT4130 Steel	HT4130 Steel	HT4130 Steel	None	Material
Booster					
Compartment Height	4.88	4.94	4.94	1.0	Inches
Compartment Area	9.74	7.85	7.85	9.42	Sq inches
Compartment Volume	47.48	38.76	38.76	9.42	Cu inches
Explosive Material	Tetrytol	Tetrytol	Tetrytol	Tetrytol	Material
Explosive Weight	2.78	2.27	2.27	0.53	Pounds
Burster					
Compartment Height	5.25	5	5	5	Inches
Compartment Area	75.48	89.36	83.58	100.7	Sq inches
Compartment Volume	396.3	446.8	417.9	503.5	Cu inches
Explosive Material	TNT	TNT	TNT	TNT	Material
Explosive Weight	22.48	25.34	23.7	28.03	Pounds
Total Explosive Weight	25.26	27.61	25.97	28.56	Pounds
Agent					
Compartment Height	5.5	5.5	5.5	5.5	Inches
Compartment Area	72.6	67.8	67.8	75.9	Sq inches
Compartment Volume	399.3	372.9	372.9	417.5	Cu inches
Material	Tantalum	Tantalum	Tantalum	Tantalum	Material
Activation	17.96	16.39	10.31	13.94	mc/gm
Weight	76.8	76.8	76.8	96.0	Pounds
Total Activity	626.1	571.3	359.4	607.0	Curies
Ratio of Weight of Agent To Weight of Explosive	3.04	2.78	2.96	3.36	None

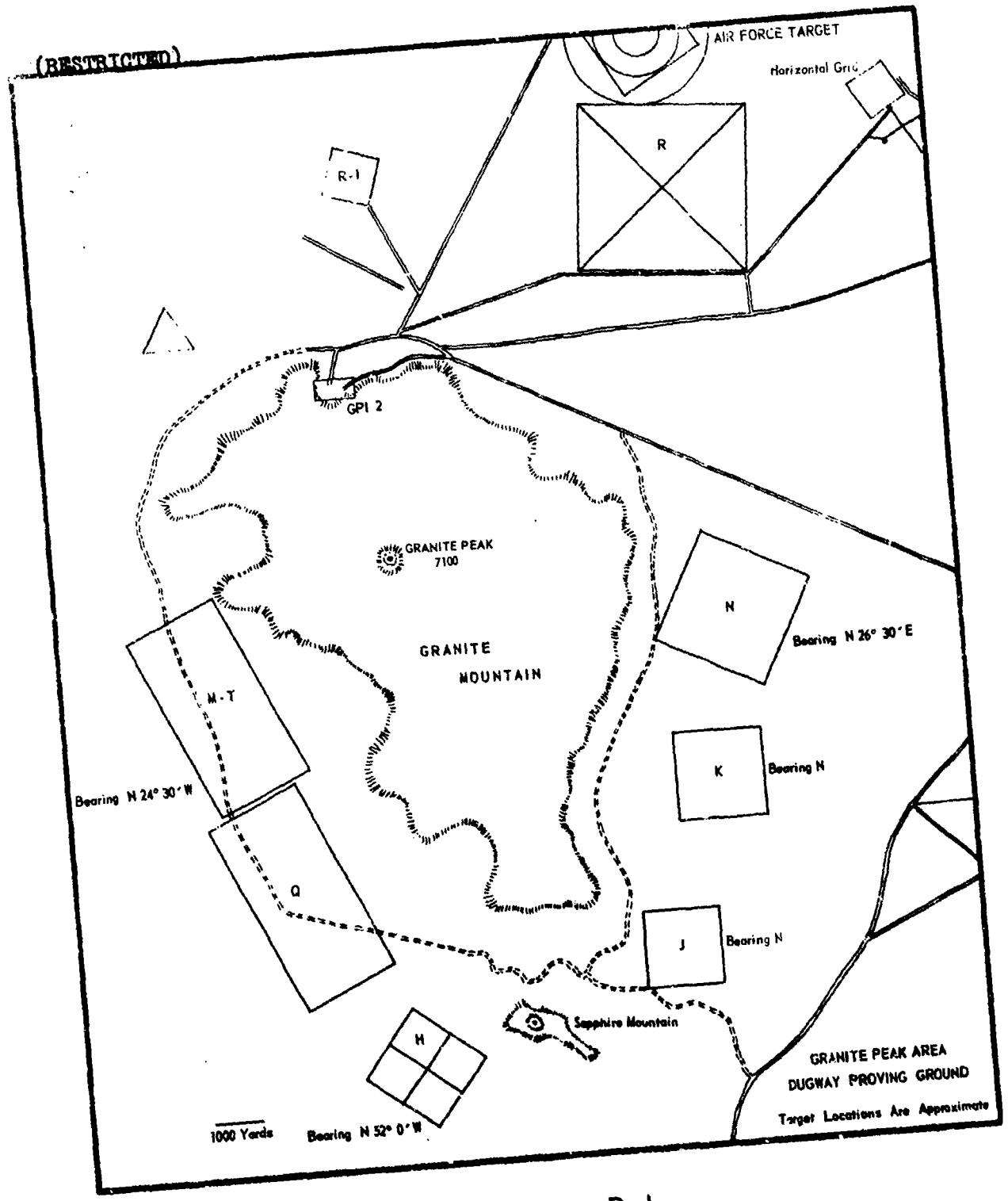

Fig. 1. –Relative Position of Target J to Granite Peak.

(RESTRICTED)

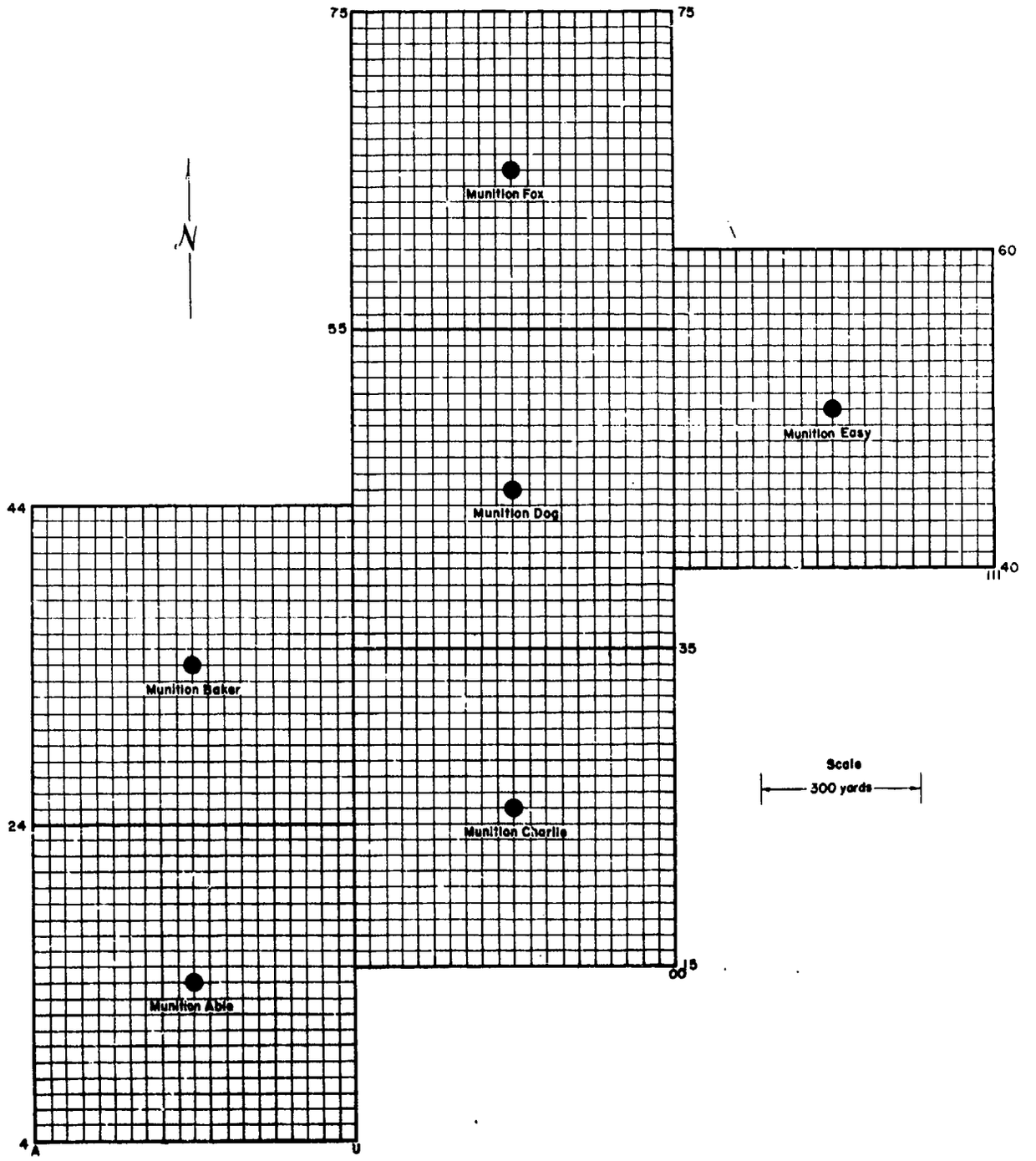

Fig. 2. – Target J Array During RW 1-53 Showing Munition Locations and Designations of Coordinates.

meters were used for target survey. Measurements to determine the specific activity of the agent were made in the RW Division Laboratory. Film badges and dosimeters were used for health physics monitoring.

(RESTRICTED) Continuous recordings of intensity measurements along alternate rows were made by the Land Survey Meter and the Cone Counter after the manual survey was completed. This equipment and the results of the survey have been described in DPG RW Scientific Report No. 1.[7]

Vehicles

(RESTRICTED) A 2½-ton truck was used to convey the agent-filled munitions from the RW Slab Area to the target. A lead barricade 5 feet high and 4 inches thick was erected between the munition shield and the driver's cab. The munition shield, assembled on the truck bed, was 4 inches thick on three sides and 8 inches thick at the rear.

METHODS

Munition Filling and Emplacement

(SECRET) The sectional munitions were shipped to Dugway Proving Ground loaded with explosive, but without initiator-detonator assemblies or agent. They were filled with agent in the filling cell at the RW Slab Area. Before the munitions were filled, the

[7] A report now in publication.

name of each munition was painted on both the explosive and munition cover plates, and the pusher plates of each munition were painted a distinctive color. Filling procedures are described in detail in DPGR 107.[8]

(RESTRICTED) Before the day of the test, agent-filled munitions were separately transported by the munitions crew to assigned targets (Figs. 3 and 4). Prior to this operation, hoisting ropes were fixed to the gibbets. The appropriate detonator-initiator assemblies were attached to the ropes in a cardboard container a short distance from the lifting yoke (Fig. 5). Detonators were wired from the gibbets to the control point to permit simultaneous firing of the six munitions. All detonators were short-circuited until firing time. The assemblies were placed in the initiator housing of the munition and the hoisting yokes were engaged in the "U" bolts on the munition coverplate while the munition was still in the lead shield on the truck (Fig. 5). The munition was then hoisted from the truck and placed on the ground beside the gibbet. These preparations were completed the night before the test; the munitions were hoisted to the firing position at 0400 hours, 23 September 1952.

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[8] Op. Cit. pp 18-21.

(CONFIDENTIAL)

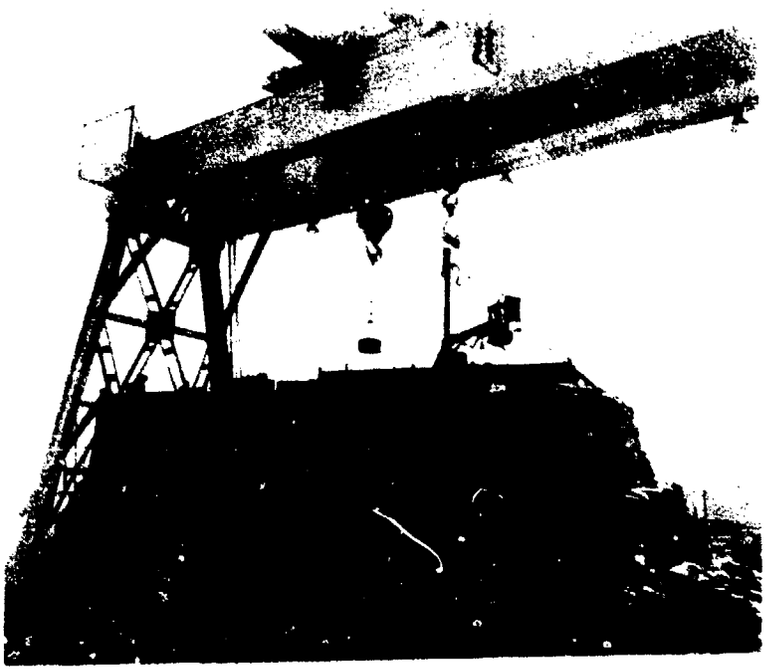

Fig. 3.-Munition transport. At the RW Slab Area the munition was lifted from the filling cell by the gantry crane. (CONFIDENTIAL)

(CONFIDENTIAL)

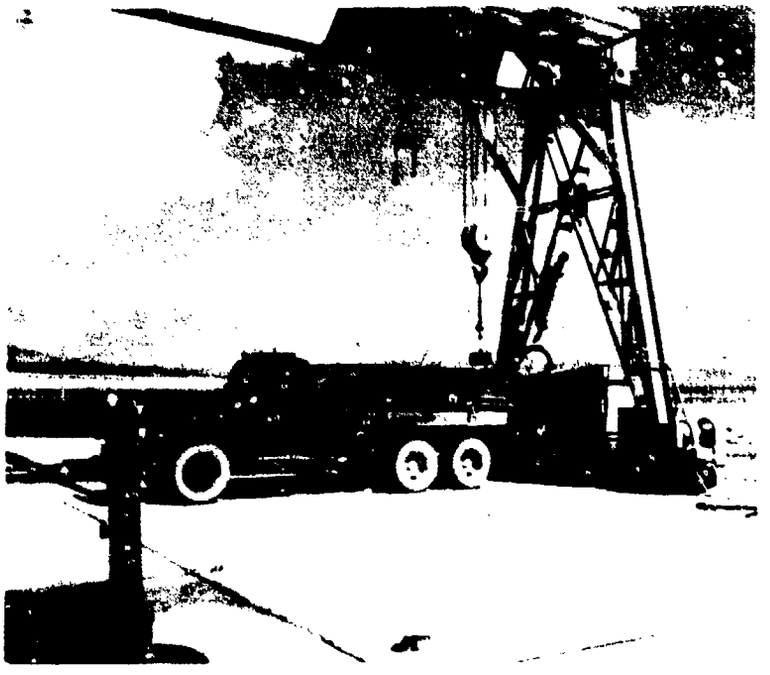

Fig. 4.-Munition transport. The gantry crane has moved the filling cell down the slab to the truck containing the lead barricades. (CONFIDENTIAL)

(CONFIDENTIAL)

Fig. 5.-Munition Emplacement. At the firing pole the detonator-initiator assemblies, in a cardboard container fastened to the hoisting rope, were removed and placed in the initiator compartment. A 14-foot pole was used as the remote handling instrument. (CONFIDENTIAL)

Target Radiation Intensity Measurements

(RESTRICTED) Prior to the test, intensities at all stations were measured at a 3-foot height to determine normal background intensity and background from residual contamination. The radiation fields of the functioned munitions were measured by the same method. Stations showing intensity levels greater then 20 mr/hr were measured with T1-B meters; MX-5 meters were used to measure lower intensities. Off-target survey was made at each grid at successive 50-yard intervals from the grid boundaries; intensity readings were recorded at stations where levels were 0.08 mr/hr or more.

(RESTRICTED) Each of the MX-5 meters used in the field survey was calibrated on the 2 and 20 mr/hr scales with a standard radium source. The 0.2 scale could not be calibrated because of background interference. Each field reading was corrected by the appropriate meter-calibration curve and for background readings equal to or greater than 0.08 mr/hr. No corrections were made for normal background.

Munition Activity Measurements

(CONFIDENTIAL) Munitions Able, Baker, Charlie, Dog, and Easy were each filled with agent pellets from 48 containers; Munition Fox was filled with pellets from 60 containers. Each container held 1.6 pounds of agent (Table 1b). It was necessary to use

several containers of pellets remaining from the RW 1-52 test in the spring of 1952 in order to complete the filling of Munitions Easy and Fox.

(SECRET) While filling each munition, at least one pellet was taken at random from each agent container for determination of the activity of the agent. These sample pellets were placed in shielded pots appropriately labeled for each munition. In addition, a random sample of five pellets was selected from one of the containers used to fill each munition. With each of these six groups of pellets, a determination was made of the distribution of activity within a single container. The specific activity of the pellets in counts per minute per gram was then determined according to procedures outlined in DPGR 107.[9] Counting rates were corrected for coincidence loss and radioactive decay, and then converted to apparent curies by the method described in UUT-I.[10]

(SECRET) The arithmetic average of the specific activities of all pellets from each pot was calculated; this single value was used as the specific activity of the agent, in apparent curies per gram, for each munition. The product of this value and the total weight of agent used in the munition gave the total radioactivity

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[9] Ibid. pp 21-22; 71-76 (Appendix V).

[10] Marilyn G. Alder, E. R. Campagna, and K. P. Anderson. A Method for the Determination of the Apparent Activity of RW Agents. UUT-I. University of Utah Radiological Research, Dugway Project, Contract No. DA 18-108-CML-4753. 22 January 1953. Abstract also Published as Appendix VI, DPGR 107. (SECRET)

content of each munition in apparent curies (Table 1b).

(SECRET) The five pellets from one container did not constitute a sample of sufficient size to determine the distribution of activity within any single container.

Meteorological Methods

(RESTRICTED) Standard surface observations were made by the Air Weather Surface Mobile Station at the test site, beginning at 0400 hours on the day of the test. These observations were continued at 30-minute intervals until firing time, and at hourly intervals thereafter until the test was completed. Because of an accident to a member of the meteorological crew, the data being taken were lost. Data taken for the same period of time in Dog Area, approximately 19 miles from the test site, are substituted (Appendix II).

Photographic Procedures

(RESTRICTED) Still photographs were taken of routine "hot" munition handling operations, and extensive photographic coverage was made of the malfunctioned munitions. Motion pictures were made of firing procedures.

Health Physics

(RESTRICTED) All test personnel wore film badges and dosimeters. A preliminary survey of contaminated areas was made by

the Health Physics Section, Operations Hazards Branch, Technical Services Division, before other personnel were permitted to enter the areas.

RESULTS

(CONFIDENTIAL) The munitions were fired at 0700 hours, 23 September 1952, at which time wind speed and direction were reported as 10 miles per hour from the Northeast. Only five flashes were observed. Munition Charlie did not explode, and remained suspended from the crosspiece of the gibbet. An inspection of this munition by the munitions crew disclosed that the jet initiator had fired. No further inspection was possible in the field. An electric blasting cap, seated in Composition 3, was placed in the initiator housing, and the munition was successfully exploded at 0750 hours.

(RESTRICTED) When monitoring crews entered the target areas, they found that Munitions Baker and Dog had also malfunctioned (Figs. 6 and 7).

(RESTRICTED) After the test, 50 Number 8 Atlas detonators, from the same lot as those used in the six munitions fired, were functioned as a control measure; 100 per cent exploded with high order detonations.

(CONFIDENTIAL) No attempt was made to survey the grid of Munition Baker. Manual surveys of all remaining grids were

(SECRET)

Fig. 6.-Baker Munition. The large object is a fragment of the annular ring. Smaller objects in the foreground are pusher plates. The rope, yoke and supporting arm were intact and still on the pole. (SECRET)

(SECRET)

Fig. 7.-Dog Munition. Close up of the malfunctioned munitions shows wave formers, jets, and agent compartments still within the munition. (SECRET)

completed the day of the test. Survey data obtained on the grid of Munition Dog were atypical because of the gross pellet concentration at the firing pole. These data were not evaluated.

(RESTRICTED) Contour diagrams of the radiation fields of the four successfully functioned munitions are shown in Appendix I.

(CONFIDENTIAL) Comparisons of the area coverage of the munitions was obtained by counting the number of stations on each target having intensities equal to or greater than given intensities (Table 2). These data were plotted in Figure 8a. The number of stations was converted into an equivalent area by considering the intensity at each station to be representative of the intensity over a surrounding area of 2500 square yards.

(CONFIDENTIAL) Profiles, or patterns of agent dispersion produced by each munition, are plotted in Figures 9a, 9b, 9c, and 9d from the data given in Table 3. The procedure used in collecting the profile data has been described in DPGR 107.[11]

(CONFIDENTIAL) Equations of the form

$$\log_{10} I = a + br + cr^2 + dr^3$$

(where I is the radiation intensity reading, r the radial distance from the firing pole, and a, b, c, and d are constants) were fitted to the data in Table 3 by the method of least squares; the constants thus determined for each munition are given in Table 4. The area coverage values shown in Table 5 were calculated from the constants of the fitted curves, and are graphed in Figure 8b for comparison with area coverage calculated from point-counting data.

[11] Op. Cit. pp 85-89.

TABLE 2: Area Coverage Calculated by Point Counting (SECRET)

INTENSITY* (mr/hr)	AREA (1000 SQUARE YARDS)			
	Able	Charlie	Easy	Fox
147	0	5	5	0
68.1	0	20	15	2
31.6	12	25	20	10
14.7	65	38	50	32
6.81	140	82	118	98
3.16	290	192	222	290
1.47	505	372	412	495
0.68	665	548	662	625

*Intensity values corrected for agent fill. Total activity in each munition corrected to activation level of 9.66 mc/gm of agent and an agent fill of 76.8 lbs., a total of 337 curies per munition. Correction applied to intensity intervals.

TABLE 3: Data Collected for Profile Diagrams (SECRET)

CLASS	DISTANCE FROM FIRING POINT (yds)	AVERAGE INTENSITY (mr/hr)*			
		Able	Charlie	Easy	Fox
1	0	40.2	164.7	93.5	74.7
2	50	25.2	77.6	33.7	24.9
3	71	22.0	31.2	42.1	21.0
4	108	18.2	34.7	44.0	16.6
5	152	12.9	6.9	15.9	6.6
6	204	7.0	4.8	5.9	5.2
7	230	3.8	2.8	3.6	3.7
8	307	3.4	1.9	2.0	2.8
9	350	2.5	2.0	2.5	2.4
10	382	2.8	1.8	1.9	1.7
11	413	2.3	1.3	1.0	1.4
12	444	1.4	1.1	1.0	1.3
13	467	1.2	0.88	0.65	0.94
14	498	0.35	0.58	0.47	1.6
	520	0.35	0.56	0.56	0.31
16	545	0.54	0.28	0.34	0.44
17	565	0.43	0.15	0.31	0.24
18	594	0.28	0.19	0.23	0.22

*Intensity values corrected for agent fill. Total activity in each munition corrected to activation level of 9.66 mc/gm of agent and an agent fill of 76.8 lbs., a total of 337 curies per munition. Correction applied to average intensity calculated for each class.

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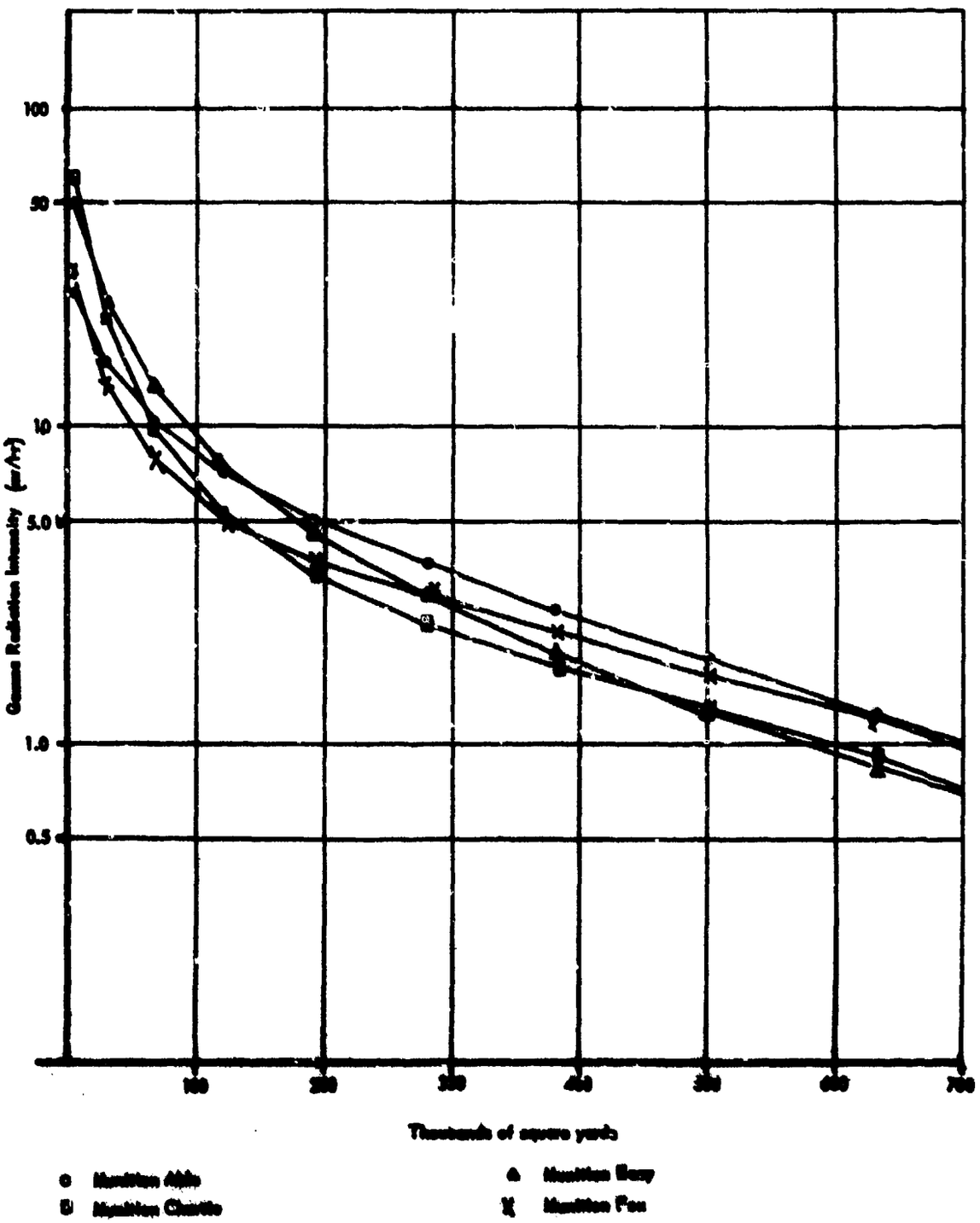

Fig. 9b.—Area Coverage Profile Method

(SECRET)

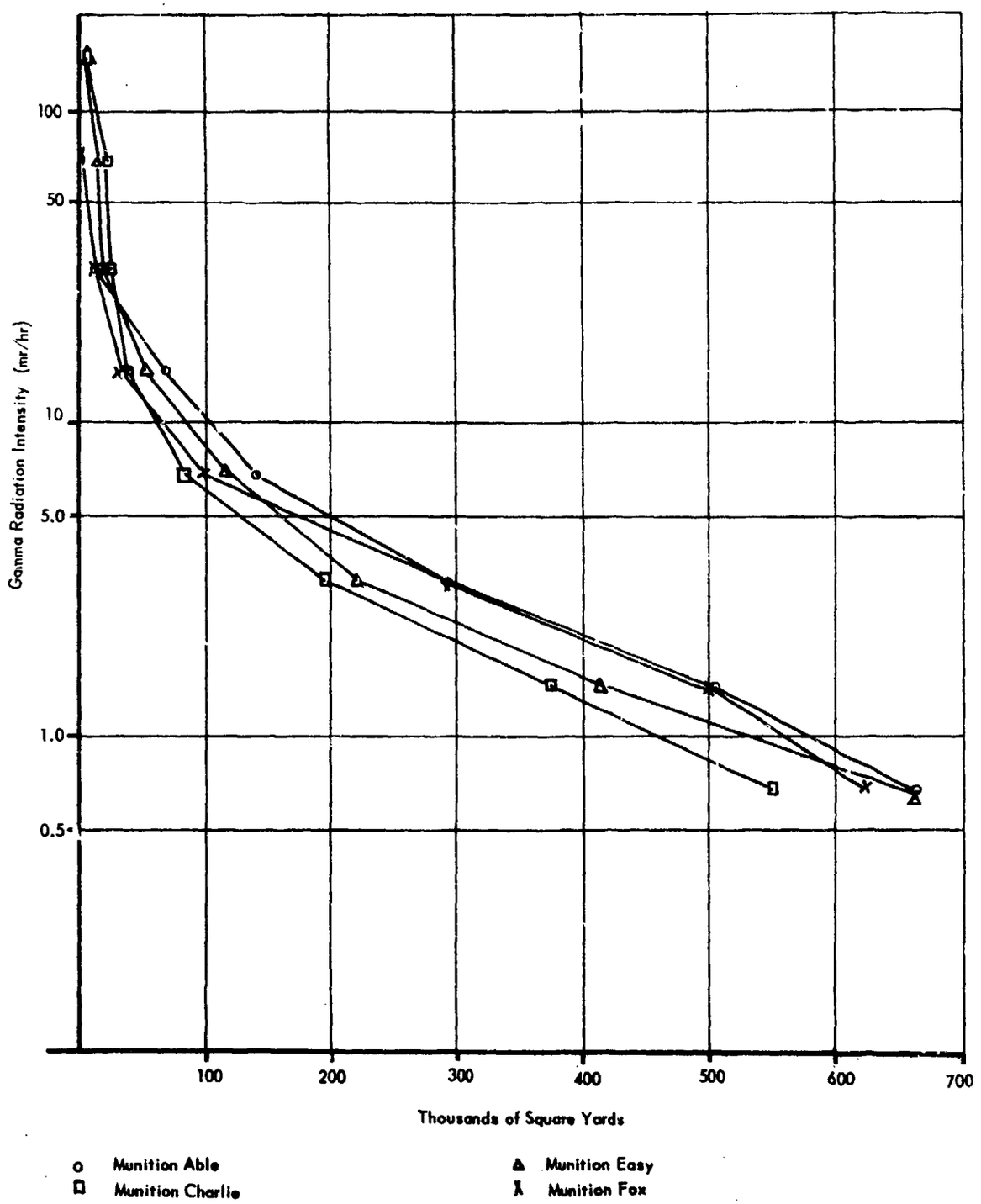

Fig. 8a. – Area Coverage: Point Counting Method.

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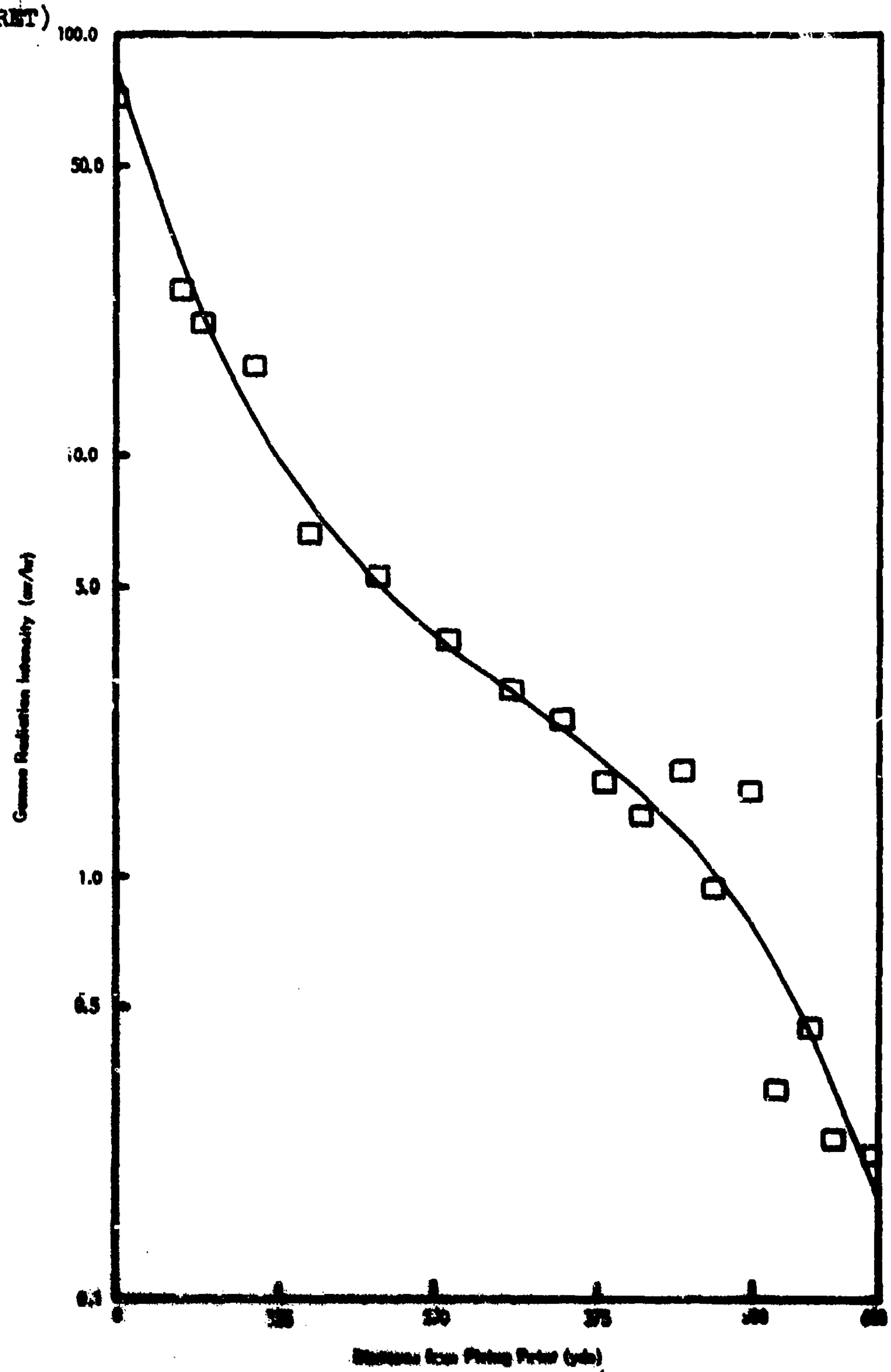

Fig. [illegible] —Profile Diagram, [illegible]

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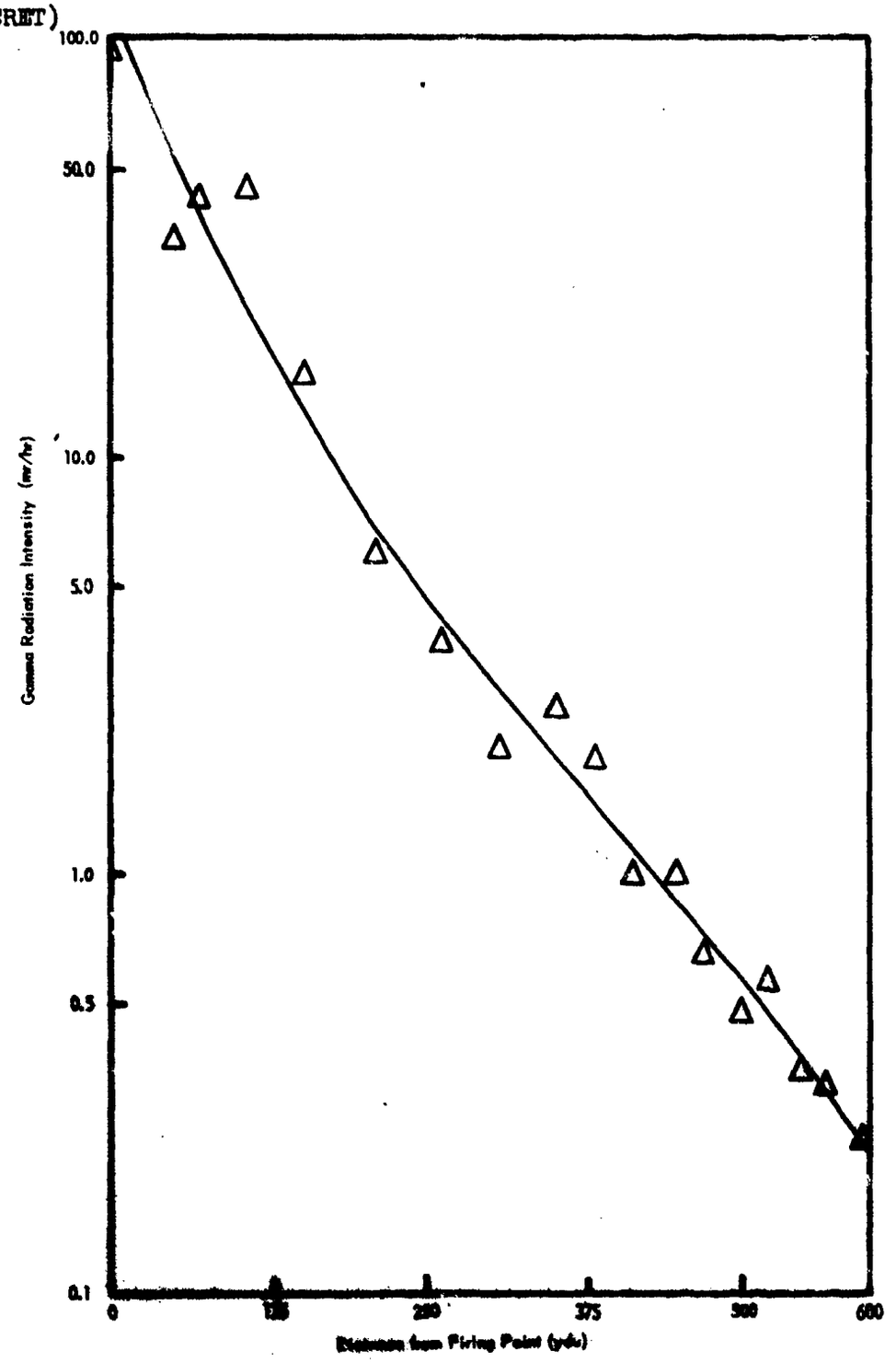

Fig. 9a – Profile Diagram, Hamilton Easy.

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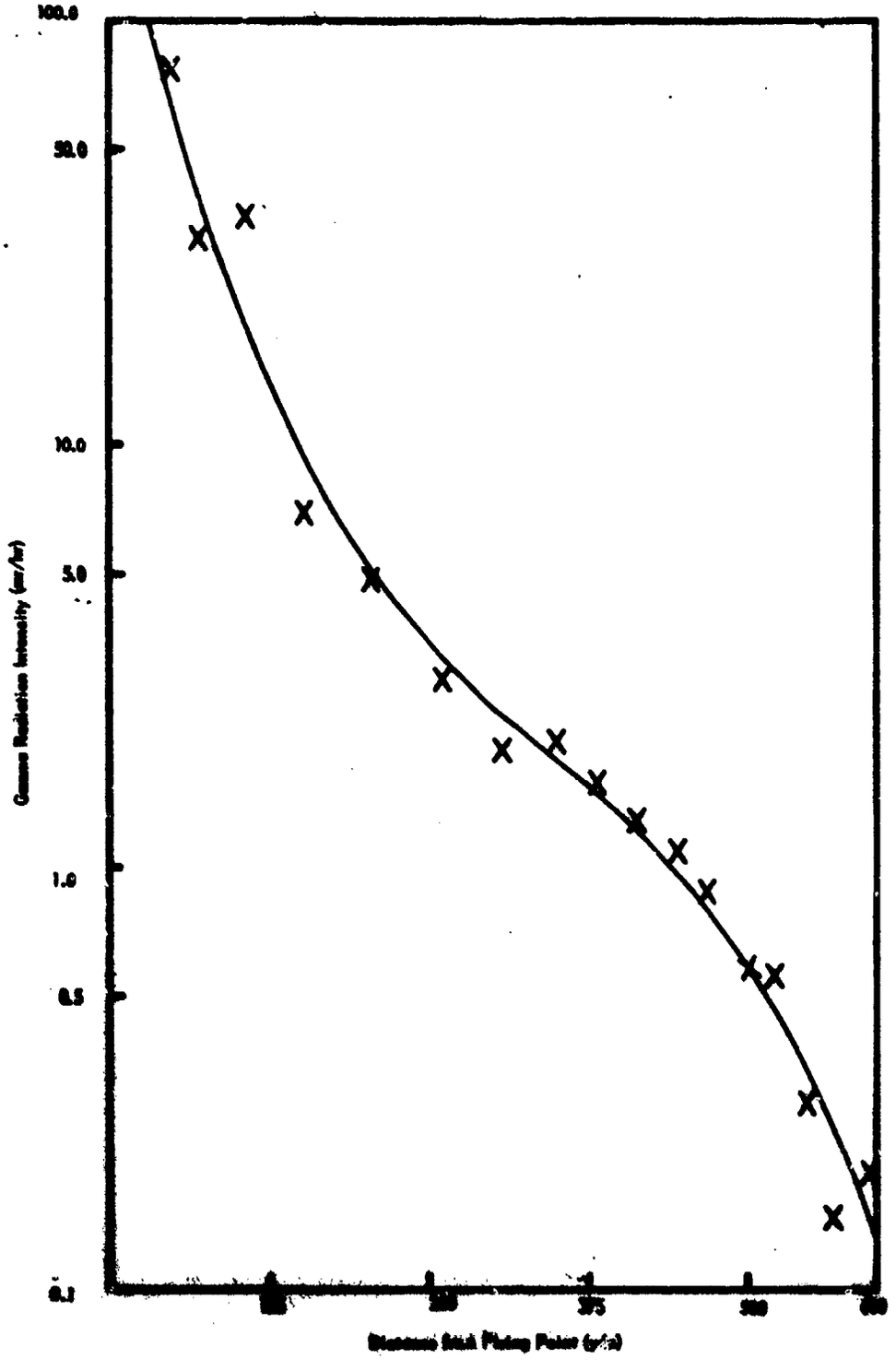

Fig. 9. –Profile Diagram, Station Charlie.

(SECRET)

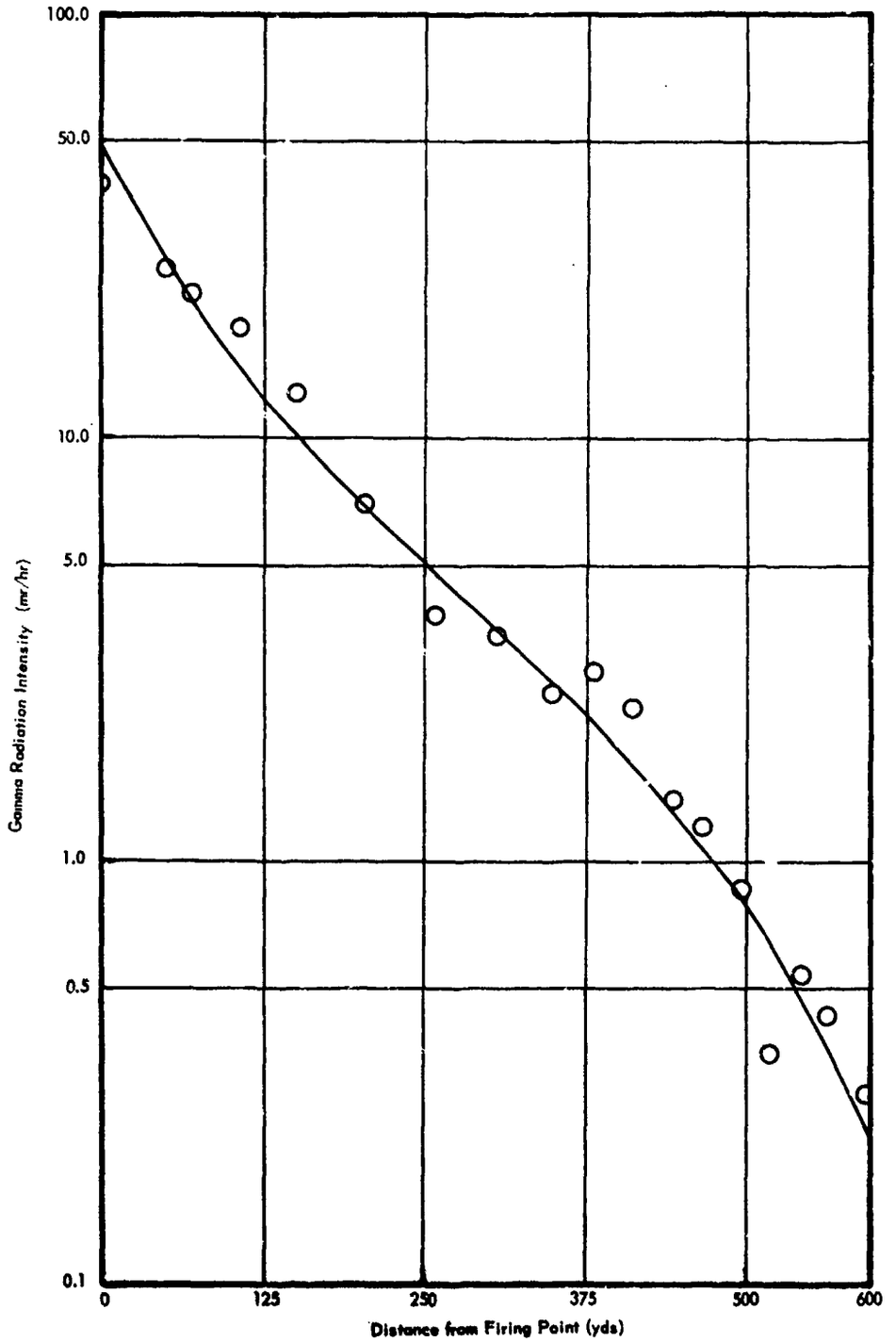

Fig. 9a. – Profile Diagram, Munition Able.

Munitions Baker, Charlie, and Dog in RW 1-52; all other differences in the munitions were considered as experimental variables. The ratio of agent weight to explosive weight was approximately the same for all munitions, except Munition Able in RW 1-52, and Munition Fox of this test (Table 1). The shapes of the profile diagrams (Figs. 9a, 9b, 9c, and 9d) were not dependent on the total activity content of the munitions.

(CONFIDENTIAL) The results of the calculation of area coverage by the point-counting method, and by substitution of values of radial distances from the firing point in the equations fitted to the profile diagrams, are compared in Figure 8a and 8b.

ANALYSIS OF FIELD DATA

(CONFIDENTIAL) Since only one munition of each design[12] was functioned in this test, the variance in area coverage or dispersion pattern of anh one munition is not known, and the differences illustrated by the plotted curves cannot be considered significant. Functioning of any additional munition identical to one of those utilized might have indicated a variance in field characteristics which, if considered common to all of the munitions, could have accounted for the differences in the dispersion patterns.

(SECRET) The profile diagrams, Figures 9a, 9b, 9c, and 9d, show no consistent differences among the munitions. There is no change

[12] See Table 1b.

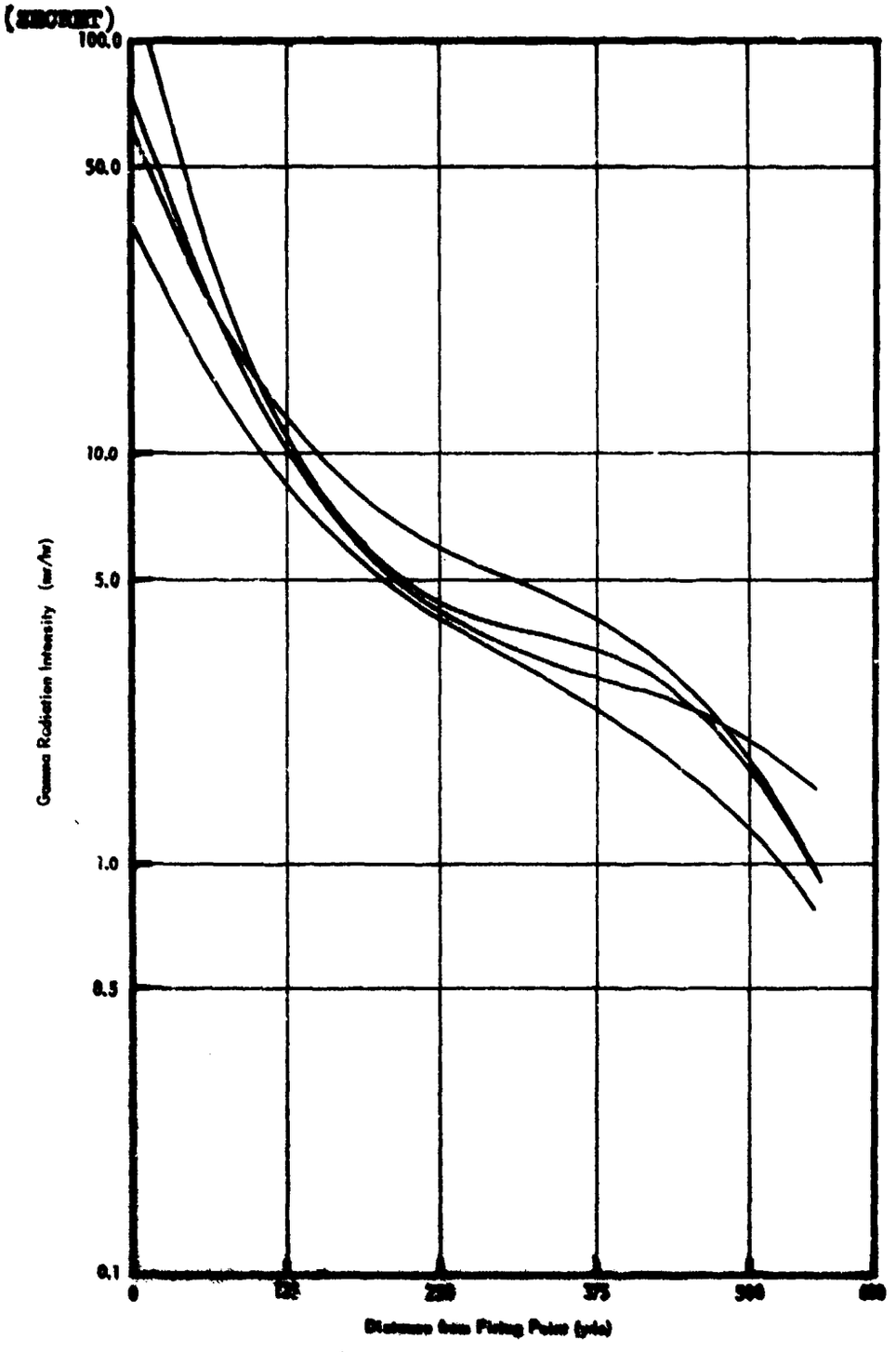

Fig. 16b.—Collateral Profile Diagram, HW 1-52.

(SECRET)

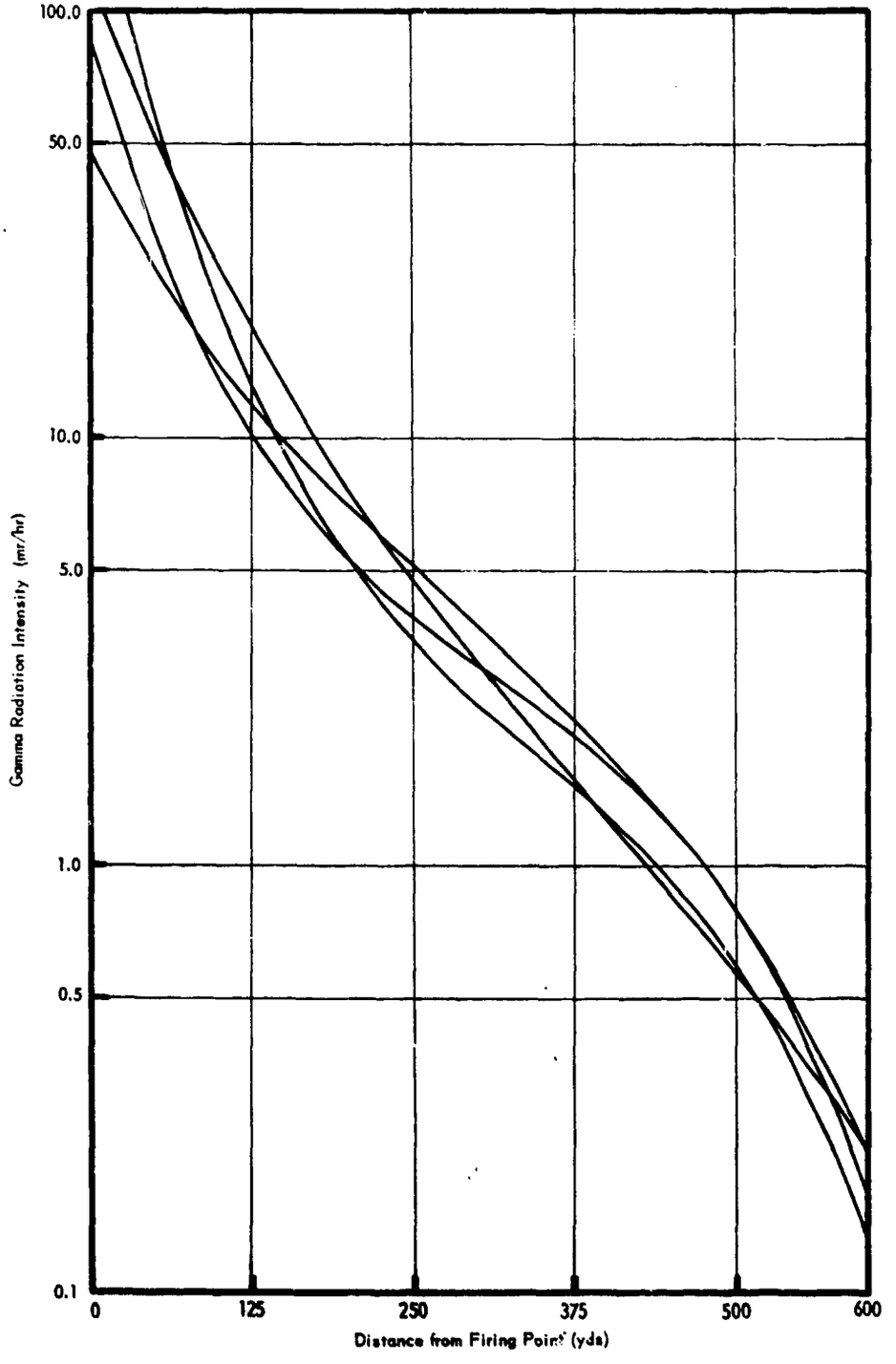

Fig. 10a. – Collected Profile Diagrams, RW 1-53.

in slope of the profiles of Munitions Able and Easy to indicate the intensity plateau predicted by the design of the shaped charge. There is a point of inflection in the profile of Munition Charlie but no plateau; Munition Fox displays a definite point of inflection with some plateau at this point; however, the latter munition did not have a shaped charge.

(RESTRICTED) Graphs of field intensity versus area coverage, from point-counting and profiling (Figs. 8a and 8b), show no significant differences in area coverage by the different munitions.

(CONFIDENTIAL) Visual comparison of the collected profile diagrams of all munitions functioned in each of tests RW 1-52 and RW 1-53 shows a distinct difference in the shapes of the grouped profiles (Fig. 10). The presence of a plateau in the dispersion pattern is more evident in each of the munitions tested in RW 1-52 than in any one of the muntions functioned in this test.

CONCLUSIONS

(SECRET) The radiation fields of the four functioned munitions show no differences which may be considered significant. However, the fields of these four munitions, considered as a group, exhibit a distinct difference in the shape of the profile diagram when compared to the fields of the M83 bombs tested in RW 1-52.[13]

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[13] Op. Cit.

(RESTRICTED) Failure of three out of five of the jet-type initiators used in this test indicates some fault in the design or application of this type of initiator.

APPENDIX I

ISOINTENSITY CONTOUR DIAGRAMS

(SECRET)

(SECRET)

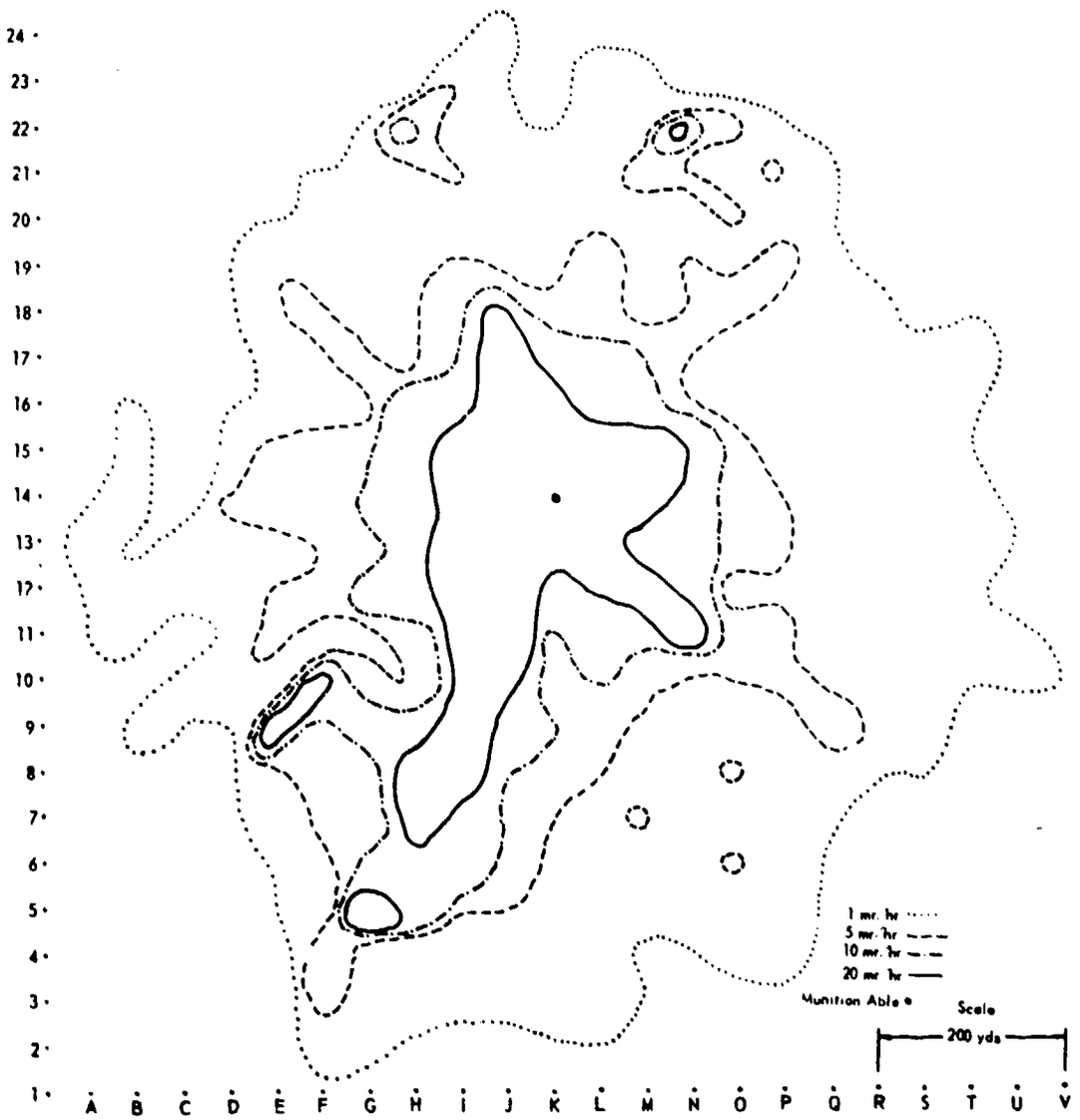

Fig. 1. – Isointensity contours for Munition Able in mr/hr at four intensity levels.

(SECRET)

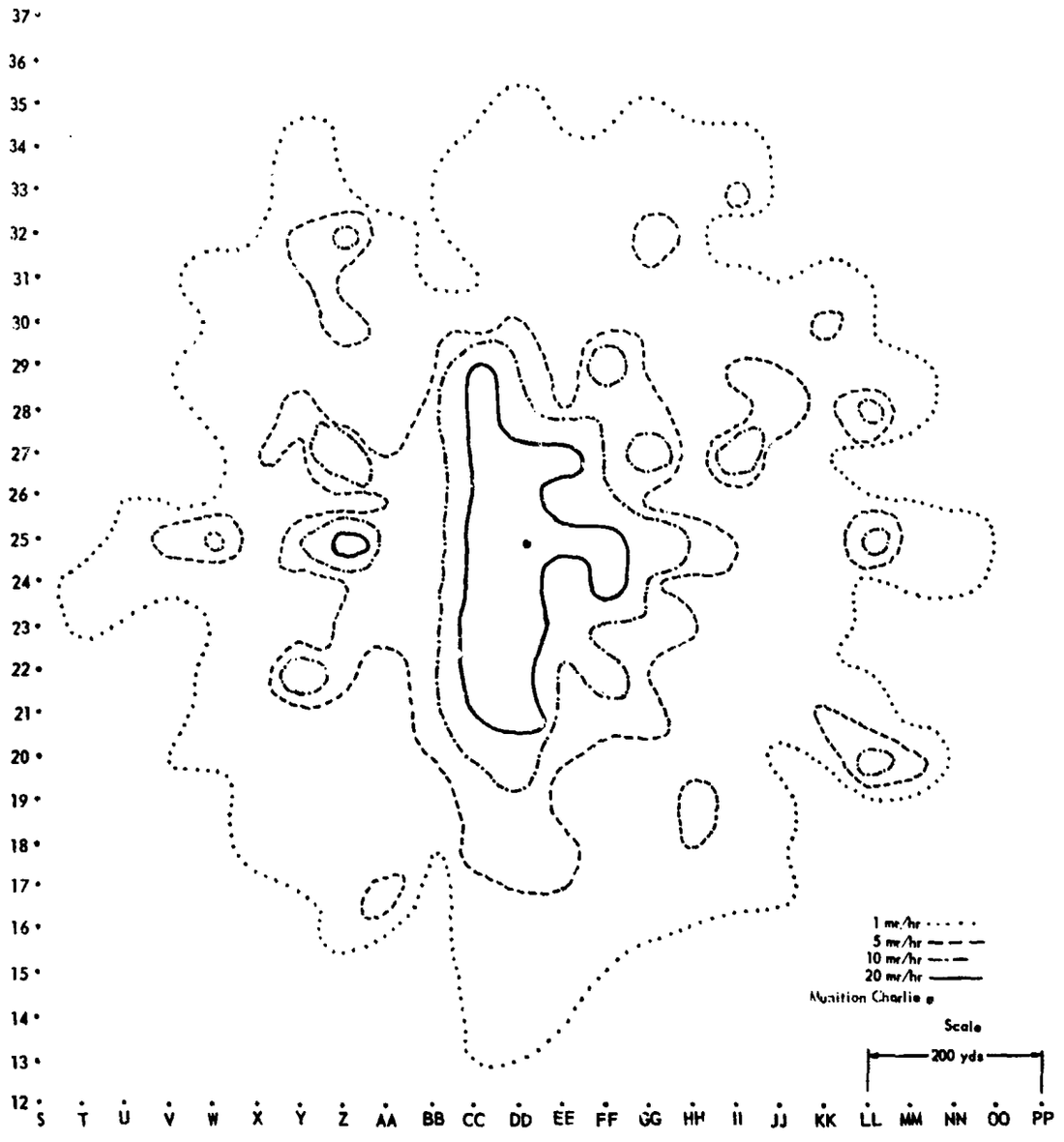

Fig. 2. – Isointensity contours for Munition Charlie in mr/hr at four intensity levels.

(SECRET)

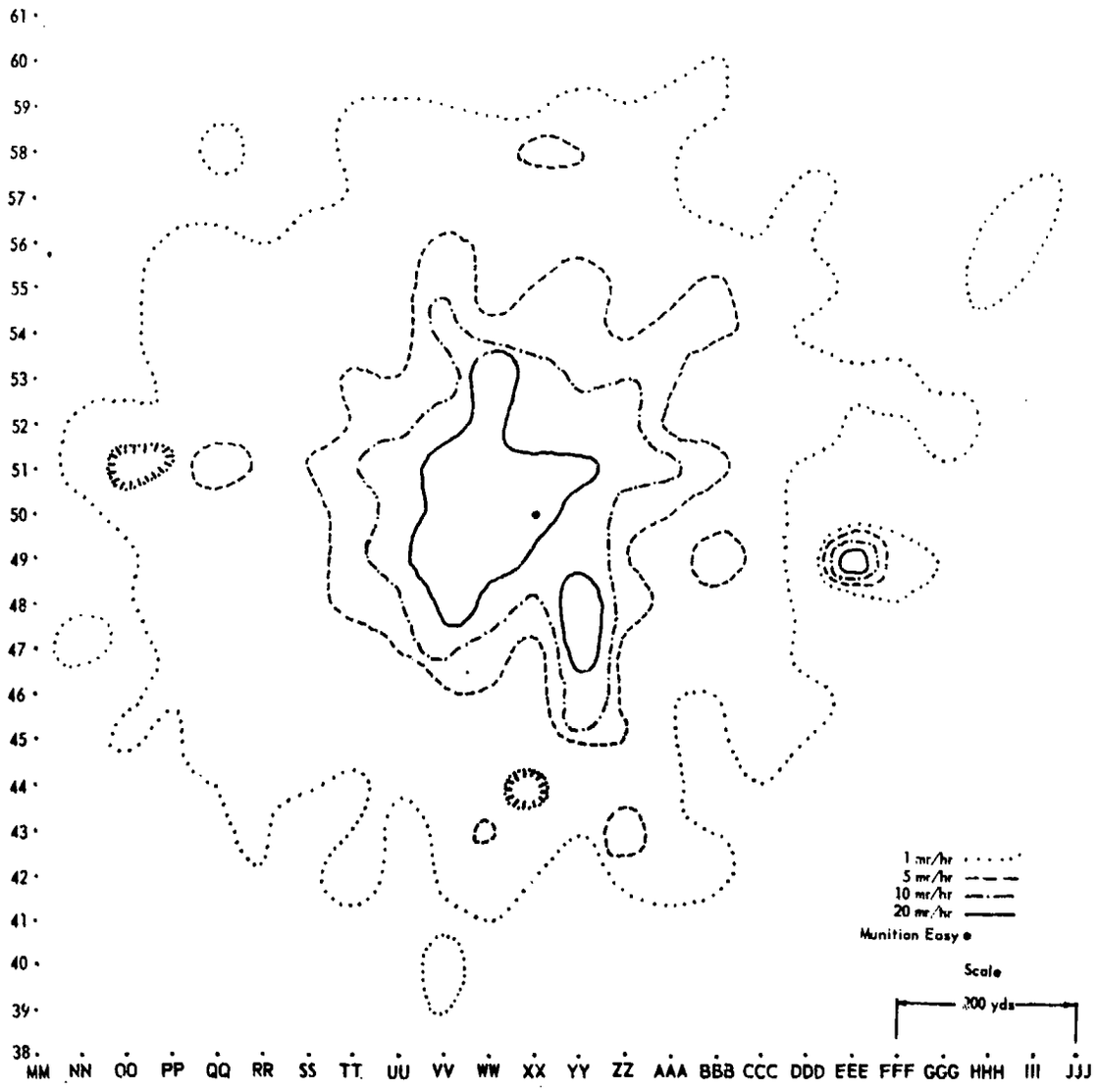

Fig. 3. – Isointensity contours for Munition Easy in mr/hr at four intensity levels.

(SECRET)

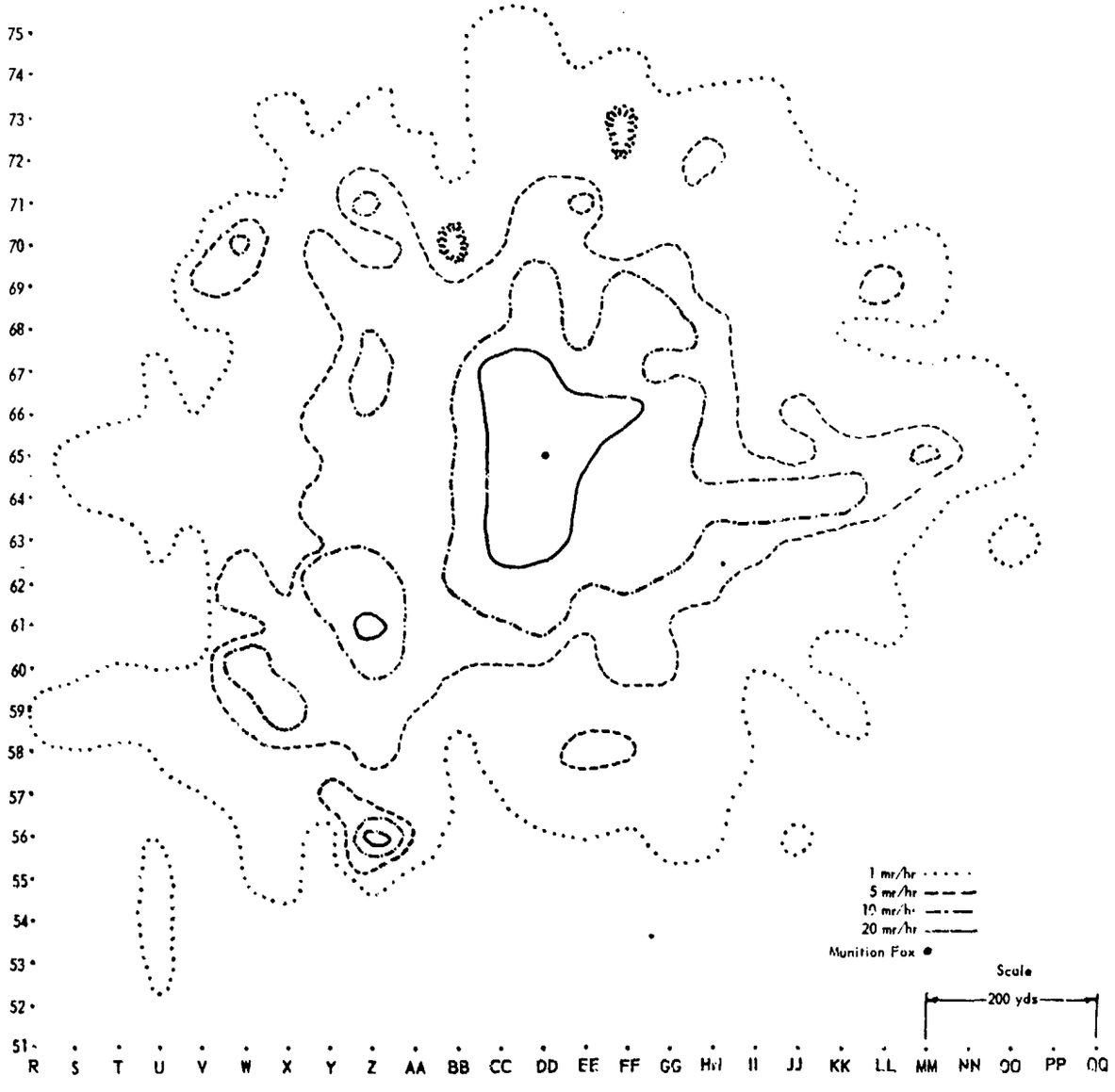

Fig. 4. – Isointensity contours for Munition Fox in mr/hr at four intensity levels.

APPENDIX II

METEOROLOGICAL DATA

(UNCLASSIFIED)

TABLE 1: Surface Weather Observations Taken At Weather Station, Dog Area (UNCLASSIFIED)

DATE	TIME (MST)	TEMP (°F)	WIND		RELATIVE HUMIDITY (%)
			Direction (° True)	Speed (mph)	
23 Sept. 52	0022	52	ESE	5	49
	0121	52	---	Calm	43
	0219	48	SE	4	44
	0323	49	S	4	45
	0418	50	---	Calm	44
	0520	49	ESE	4	46
	0618	47	SSE	4	49
	0717	49	---	Calm	48
	0822	60	---	Calm	37
	0921	69	---	Calm	31
	1020	74	---	Calm	30
	1120	79	NW	5	21
	1220	80	NW	5	20
	1320	82	NW	12	20
	1420	84	N	14	21
	1520	85	NW	12	19
	1620	84	NW	12	21
	1722	82	NW	13	21
	1820	78	NW	8	28
	1921	68	N	5	29
	2020	67	NNW	4	30
	2122	61	SSE	6	32
	2222	55	---	Calm	44
	2321	59	S	4	42
24 Sept. 52	0520	46	SE	2	46
	1120	77	NW	4	23
	1722	84	NW	10	24
	2325	60	SSE	6	33
25 Sept. 52	0522	48	SE	6	41
	1120	77	W	4	34
	1720	84	NW	10	25
	2320	56	---	Calm	38

Continued

TABLE 1: Surface Weather Observations Taken At Weather Station, Dog Area (Concluded)

DATE	TIME (MST)	TEMP (°F)	WIND		RELATIVE HUMIDITY (%)
			Direction	(mph)	
26 Sept. 52	0521	47	ESE	6	47
	1121	78	WNW	3	32
	1720	85	WNW	6	17
	2320	63	---	Calm	40
27 Sept. 52	0520	54	---	Calm	51
	1120	78	---	Calm	30
	1720	84	NW	14	21
	2320	61	NW	4	33

TABLE 2: Surface Wind Data Taken At Target S* (UNCLASSIFIED)

DATE	TIME (MST)	AVERAGE DIRECTION (° True)	AVERAGE SPEED (mph)
23 Sept. 52	0650	153	3.2
	0655	153	3.3
	0700	153	1.6
	0705	161	1.5
	0710	153	1.1
	0715	157	2.0
	0720	157	2.1
	0725	162	2.2
	0730	162	1.7
	0735	171	1.0
	0740	---	Calm
	0745	157	1.0
	0750	150	1.7
	0755	145	2.1
	0800	144	2.1

*Target S is approximately 7000 yards northeast of Target J.

(UNCLASSIFIED)

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JUN 30 2000

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Dear Sir:

The Department of Defense (DoD) Radiation Experiments Command Center (RECC) was established in response to the direction of the 7 January 1994 Secretary of Defense memorandum to compile, review, catalog, and retain documents and information pertaining human subject experiments involving ionizing radiation. DoD RECC made documents and information available to the public after proper reviews for classifications, personal privacy, or other release restrictions. The RECC is the approving authority for the release of documents and information once the redacted material has been extracted.

The documents in the following list have been reviewed and are now approved for release to the public, i.e. DoD Distribution Statement A:

AD 161955: A Study of the Effects of Total and Partial Body Radiation on Iron Metabolism and Hematopoiesis

AD 202550: Study of the Post-Irradiation Syndrome in Humans

AD 332449: Preparation of O-Alkyl Alkylphosphonoazidothioates of the Type MEP (S) or N3

AD B969511: Preparation of 4-Benzylpyridine

AD 114826: Preparation of V Agents in Aqueous Medium

AD 521703: RW Decontamination and Land Reclamation Studies

AD 596085: Static Test of Full-Diameter Sectional Munitions, E83, DPG RW 1-53

AD 521702: Dynamic Test of Spherical Radiological Munitions

AD 521701: Static Test of Four Segments of Full-Diameter Sectional Munitions, E83

This information is provided to you so that you can update your records. If you have any questions, please call me at (703) 325-2407.

Sincerely,

D. M. Schaeffer
Program Manager
Radiation Experiments Command Center